



June 18, 2007

Westfield Town Council  
130 Penn Street  
Westfield, Indiana 46074

RE: Westfield TIF (Tax Incremental Financing) Projects  
Town Council Update Letter  
HNTB Job No. 42619-DS-002-001.1A

Dear Town Council Member:

The Town of Westfield entered into an agreement with HNTB Corporation in 2003 to provide engineering and design services for transportation improvement projects within the TIF district. Over the past several years, we at HNTB have been working on the design for the proposed TIF projects. During this time, several of the Westfield Town Council members changed hands in addition to a new town manager. With these changes come questions from the new administration. The purpose of this letter therefore, is to provide the Westfield town council members with 1) historic information used to develop the TIF projects, 2) schedule a meeting to discuss the TIF projects, and 3) decide how we are to move forward with the remaining TIF projects.

1) Historic Information Related to the TIF Projects

We are pleased to submit to you an information packet prepared for the Westfield TIF projects. This information will help supplement the overview of how the projects were developed from conception to the present. This packet includes a Project Timeline, Traffic Study Reports, and maps identifying the TIF projects. An explanation of each follows.

The **Westfield TIF Project Timeline**, dated June 18, 2007, as provided includes basic project milestones and associated dates from the beginning of the project through the anticipated completion of future (unfunded and/or on hold) portions of the TIF projects. An explanation of the TIF projects is provided later in this document. While the Timeline includes several key dates, it is important to note the dates and number of times the project switched gears and changed focus or direction. These changes in direction generally occurred with new Town leadership which required revisions to the schedule and inevitable led to delay. The original completion of TIF projects has been pushed at least one year from 2008 to 2009 at a minimum. Another important note to keep in mind when reviewing these documents is some of the TIF projects are on hold due to funding shortages. This is clarified later in the document.

Prior to identifying the TIF projects and in anticipation of the Clay Terrace development, the Town requested HNTB to study traffic on the west side of US 31 along Western Way between 146th Street and Greyhound Pass. The **West Greyhound Pass Traffic Study**, dated March 23, 2003 is provided for your review. Subsequent to establishing the TIF projects, a second traffic study was completed on the east side of US 31. The East Access Road would be located between Greyhound Pass and 151st Street behind (or east of) the Village Park shopping complex (a.k.a. Marsh, Simon Properties, Wal-Mart). The **East Access Road Traffic Study**, dated January 20, 2006 is also provided for your review.

The original TIF projects established in September of 2005 include the following:

Roadway Design Group	Roadways Included:
A	Greyhound Pass / Western Way (146 <sup>th</sup> Street to Greyhound Court) Multi-Use Path along 146 <sup>th</sup> Street (Harvest Drive to Carey Road) Traffic signal on Greyhound Pass (147 <sup>th</sup> Street at Menard's)
B	East Access Road (Greyhound Pass to 151 <sup>st</sup> Street) 151 <sup>st</sup> Street (Thatcher Lane to Oak Road)
C	Greyhound Court (Greyhound Pass to 151 <sup>st</sup> Street)

The original **Proposed TIF Projects** location map dated September 29, 2005 is included. A revised **Westfield TIF Projects** location map dated April 18, 2007 is also included. The difference between these two location maps reflects the change in project limits for the 151<sup>st</sup> Street project. The limits on 151<sup>st</sup> Street were extended from Oak Road to Setters Road. With the extension of the 151<sup>st</sup> Street project, we developed four intersection alternatives at Carey Road. These alternatives, **sheets 1 thru 5** dated May 9, 2007 are included. The four alternatives include two roundabouts, one 1-lane and one 2-lane, and two signalized intersections, one 2-lane and one 4-lane. The Town has directed us to move forward with design of the 2-lane roundabout. The portion of 151<sup>st</sup> Street between Thatcher Lane and Carey Road is on hold. We completed preliminary design and limited right-of-way engineering. We have not started any of the right-of-way acquisition for this project. The remaining portion of 151<sup>st</sup> Street from Carey Road to Setters Road is scheduled for 2008 construction. We have completed approximately 50% of our design and will continue with design and right-way acquisition.

The **Western Way/Greyhound Pass** drawing dated March 29, 2007 is provided. This project is scheduled for 2008 construction. We have completed final design and are currently appraising property for acquisition anticipated to begin in fall of 2007.

The **East Access Road** drawing dated March 27, 2007 is provided. This project is currently on hold. We have completed preliminary design and limited right-of-way engineering. We have not started any of the right-of-way acquisition for this project.

2) Schedule a Meeting to Discuss the TIF Projects

Currently, we anticipate the TIF projects have been added to the June 28, 2007 (7 pm) Town Council Meeting agenda. HNTB engineers Bill Denhardt, Paul Satterly, and Erica Pugh will be available to present a brief overview of this material. We will have available for viewing the animated traffic modeling associated with the TIF projects. In addition, we are compiling a spreadsheet documenting current and anticipated TIF project costs to be available the evening of the 28<sup>th</sup>. To give an order of magnitude, we anticipate approximately a \$10 million shortfall to complete all TIF projects.

3) Decide how to move Forward with TIF Projects

We ask that you study the information provided in this packet carefully prior to the June 28, 2007 Town Council meeting. If you have questions related to project costs, please hold these until we provide you with the spreadsheet as previously mentioned. With the information we have provided, and after our presentation at the Town Council meeting, we will be soliciting your input on how to move forward with the TIF projects.

Included are the following items for your review:

**Westfield Tiff Project Timeline** – June 18, 2007  
**West Greyhound Pass Traffic Study** - March 28, 2003  
**East Access Road Traffic Study** - January 20, 2006  
Original **Proposed TIF Projects** location map – September 29, 2005  
Revised **Westfield TIF Projects** location map – April 18, 2007  
Four Intersection Alternatives at Carey Road (May 9, 2007, **Sheets 1 thru 5**)  
    **Sheet 1 of 5**, One Lane Roundabout  
    **Sheet 2 of 5**, Two Signalized Intersection  
    **Sheet 3 of 5**, Two Lane Roundabout (zoom out)  
    **Sheet 4 of 5**, Two Lane Roundabout (zoom in)  
    **Sheet 5 of 5**, Four Signalized Intersection  
**Western Way/Greyhound Pass** drawing – March 28, 2007  
**East Access Road** drawing – March 27, 2007

Westfield TIF Projects  
Town Council Update Letter  
June 18, 2007  
4 of 4

Finally, if you have any questions or concerns, you may contact us at (317) 636-4682. We look forward to meeting with you soon.

Very truly yours,

HNTB Corporation

A handwritten signature in black ink, appearing to read "William E. Denhardt", with a long horizontal flourish extending to the right.

William E. Denhardt  
Project Manager

WED/elp

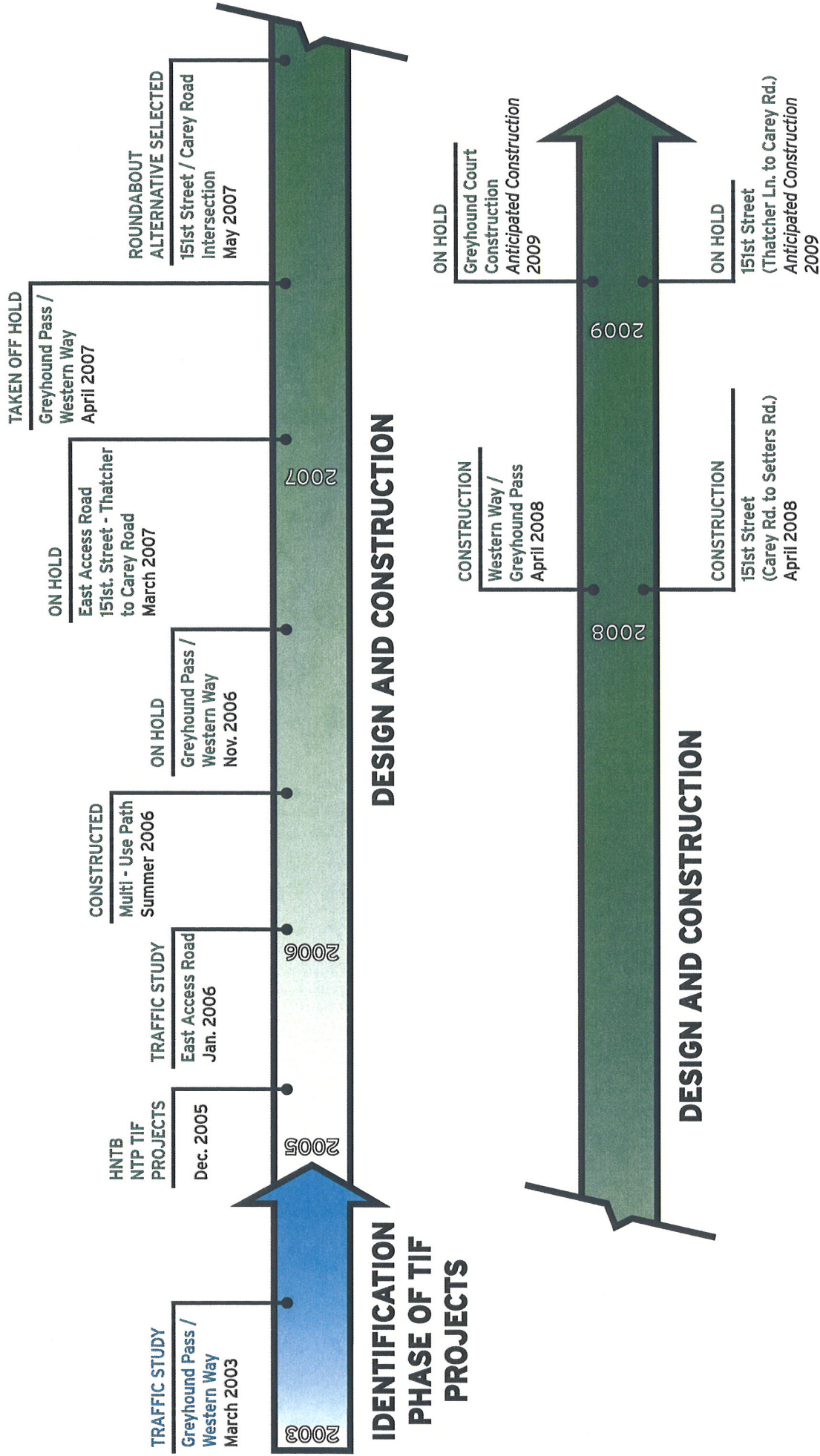
Enclosures

Westfield Town Council Members:

Andy Cook, President  
John Dippel  
John B. Hart  
Robert L. Horkay  
Joe Plankis  
Robert J. Smith  
Ron Thomas

cc: Bruce Hauk, Town Manager  
Kurt Wanninger, Public Works Department  
Pat Spence, HNTB Corporation  
Paul Satterly, HNTB Corporation  
Erica Pugh, HNTB Corporation

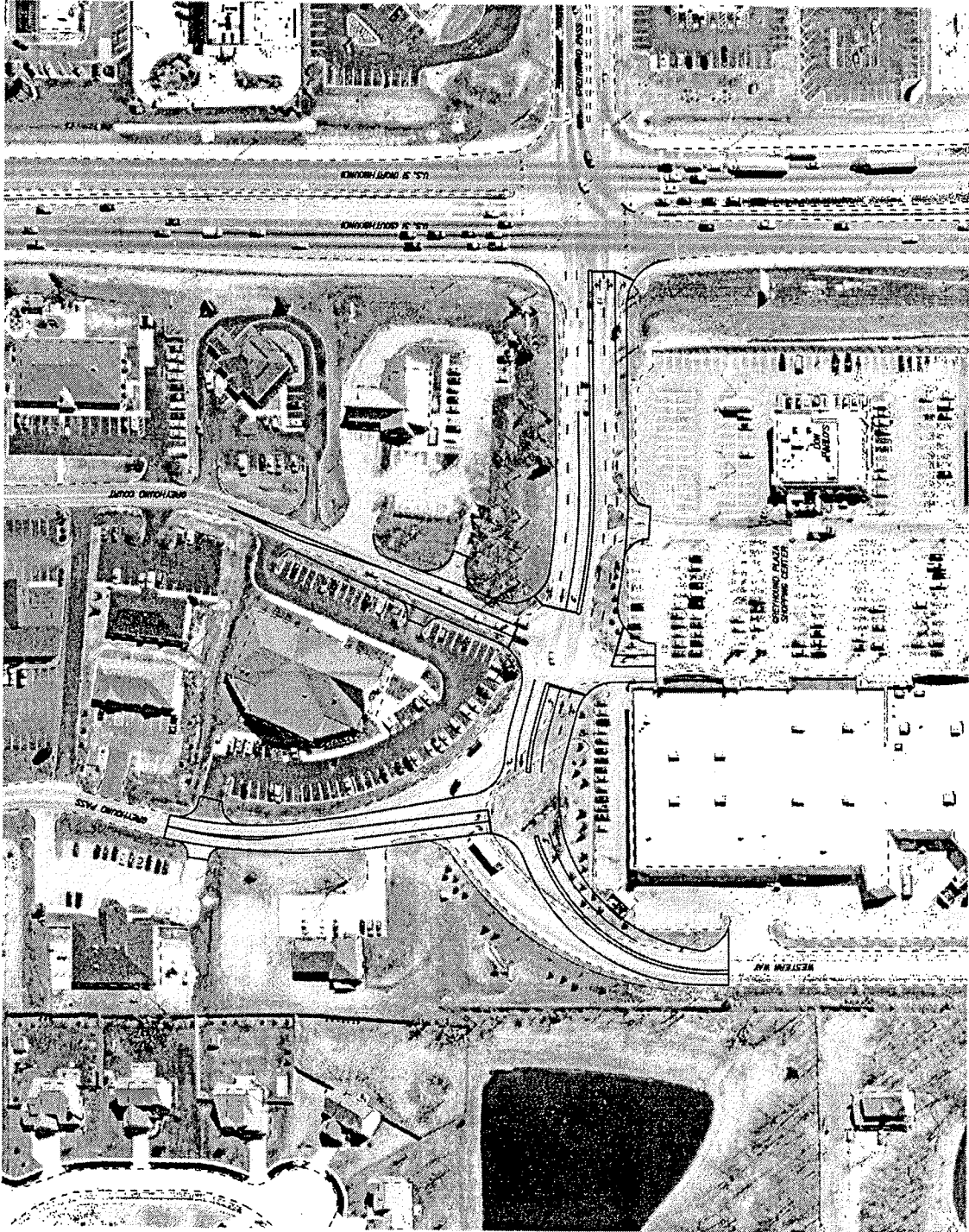




# WESTFIELD TIF PROJECT TIMELINE

DATE: JUNE 18, 2007













ARCHITECTS ENGINEERS PLANNERS

111 Monument Circle  
Indianapolis, Indiana  
46204-5178  
(317) 636-4682  
FAX (317) 917-5211  
[www.hntb.com](http://www.hntb.com)

March 28, 2003

Mr. Bruce Hauk  
Director of Public Works  
Town of Westfield  
2706 E. 171<sup>st</sup> Street  
Westfield, Indiana 46074

Re: West Greyhound Pass Traffic Study  
Final Report  
HNTB Project No. 37727-DS-001-001.1A

Dear Mr. Hauk:

We have concluded our traffic study of West Greyhound Pass between US 31 and Western Way. This letter report summarizes our findings and recommendations. As part of this study, we have coordinated with INDOT and our report includes upcoming improvements proposed at the US 31 intersection.

#### Background -

Traffic has been increasing on West Greyhound Pass since the completion of the Greyhound Plaza Shopping Center and the completion of the 146<sup>th</sup> Street project. With the construction of the Clay Terrace Development located south of 146<sup>th</sup> Street at Western Way, traffic is expected to almost triple along Greyhound Pass. Forecasted volumes for the 430,000 square foot development were obtained from A&F Engineering Company's Traffic Impact Analysis dated November 2001. Improvements to West Greyhound Pass are needed in anticipation of the traffic that will be generated by the Clay Terrace Shopping Center development. This project will likely be completed within the next two years.

Due to increases in traffic and accidents at the West Greyhound Pass/Greyhound Court/Greyhound Plaza intersection, four-way stop control was implemented in December 2002. The four-way stop control adequately serves existing traffic, but added improvements will be needed to accommodate the Clay Terrace development. Because of steadily increasing traffic, a traffic signal will likely be warranted at this intersection within the next year and will definitely be warranted after the opening of the Clay Terrace development.

#### Existing Conditions, Forecasted Traffic -

West Greyhound Pass (Greyhound Pass) is a four-lane undivided roadway extending west from the US 31 intersection to the intersection at Western Way. Greyhound Pass narrows to two-lanes west of Western Way. Greyhound Court is two-lanes wide and has a single lane approach to Greyhound Pass. The Greyhound Plaza drive is two-lanes wide with a single lane approach to Greyhound Pass. Western Way is three-lanes wide with a two-lane approach to Greyhound

*The HNTB Companies*

OFFICES: ALEXANDRIA, VA; ANNAPOLIS, MD; ATLANTA, GA; AUSTIN, TX; BATON ROUGE, LA; BOSTON, MA; CHARLESTON, SC; CHARLESTON, WA; CHICAGO, IL; CLEVELAND, OH; COLUMBIA, OH; DALLAS, TX; DENVER, CO; DETROIT, MI; ELKINS, WA; FORT WORTH, TX; HARTFORD, CT; HICKSVILLE, NY; HOUSTON, TX; INDIANAPOLIS, IN; KANSAS CITY, MO; KNOXVILLE, TN; LANSING, MI; LOS ANGELES, CA; LOUISVILLE, KY; MADISON, WI; MIAMI, FL; MILWAUKEE, WI; MINNEAPOLIS, MN; NASHVILLE, TN; NEW YORK, NY; OAKLAND, CA; ORANGE COUNTY, CA; ORLANDO, FL; OMAHA, NE; OMAHA, NE; PHILADELPHIA, PA; PORTLAND, ME; PORTLAND, OR; RALEIGH, NC; ST. LOUIS, MO; SALT LAKE CITY, UT; SAN ANTONIO, TX; SAN BERNARDINO, CA; SAN FRANCISCO, CA; SAN JOSE, CA; SEATTLE, WA; TAMPA, FL; TOLEDO, OH; WAYNE, NJ; WASHINGTON, DC.

Pass. The Greyhound Pass/Western Way intersection has stop sign control on the Western Way approach. Four-way stop control is used at the Greyhound Pass/Greyhound Court/Greyhound Plaza intersection.

Traffic along Greyhound Pass was counted in October 2002 during the noon and PM peak periods. These traffic volumes are summarized in the figure titled "Existing 2002 Traffic". To illustrate the increase in traffic due to the Clay Terrace development, the PM development traffic has been added to the existing noon and PM traffic volumes and this total is summarized in the figure titled "Existing 2002 Traffic + Development". A growth rate of 1.5% over 10 years was used to increase this traffic to provide design volumes used in analysis. The design volumes are shown in the figure titled "2012 Traffic (1.5% Growth of Ext. 2002 Traffic + Development)".

#### Alignment Alternatives -

Three alignment alternatives were developed for the traffic study. All alternatives share the same lane geometry between US 31 and Greyhound Court, although the Alternative No. 3 alignment is located about a lane width farther north. This common section is six-lanes wide to allow for parallel left turn lanes. Parallel left turn lanes are used because of the high left turn volumes into the shopping center and onto US 31 requiring lane lengths longer than what can be accommodated by back to back left turn lanes between the intersections. Two other lanes in each direction are required to accommodate the 500 to 800 through vehicles in the peak hour. A raised median would prohibit left turns into and out of the Don Pablo driveway. Lane assignments are shown on the alternative exhibits.

The alternatives share the same approach lane geometry at the Greyhound Court/Greyhound Plaza intersection. Left turn lanes have been added and the alternatives show a widened receiving lane. The addition of a left turn lane is a typical improvement used to reduce congestion, reduce delays and increase safety at a signalized intersection.

Exhibit Sheet No. 1 shows the alignment of Alternative No. 1. This alternative favors traffic from the south and east. A 200 ft. radius curve connects Greyhound Pass to Western Way and will limit the speed to 20 mph around the curve. Greyhound Pass to the north intersects the through roadway with a "T" intersection and is stop controlled. Left turn lanes are provided on the southbound and eastbound approaches. Due to the close intersection spacing, the eastbound left turn lane continues through the Greyhound Pass/Western Way intersection to the Greyhound Court/Greyhound Plaza intersection.

Exhibit Sheet No. 2 shows the intersection of Western Way and Greyhound Pass for Alternative No. 2. This alternative is a "T" configuration with free flowing right turn lanes for northbound Western Way and westbound Greyhound Pass. The straight alignment for northbound and southbound traffic will accommodate future improvements to this north-south route for a frontage road as part of the US 31 freeway project. The north-south alignment is two lanes wide with a southbound left turn lane. The intersection is two-way stop controlled for northbound and

southbound movements. The heavy westbound left turn and northbound right turn movements do not stop.

Exhibit Sheet No. 3 shows Alternative No. 3 as a modification of the existing Greyhound Pass and Western Way alignment. Greyhound Pass is widened west of the Greyhound Court/Greyhound Plaza intersection to accommodate the parallel left turn lanes between Western Way and the Greyhound Court/Greyhound Plaza intersection and to accommodate an additional eastbound through lane. The southbound receiving lane of Western Way is widened to better accommodate traffic turning off of Greyhound Pass. Western Way will be stop sign controlled and Greyhound Pass will remain as the through roadway. The need for a traffic signal at this location is discussed in the Alternative Analysis section. This alternative has the least amount of right-of-way impact and the least construction cost since it primarily uses the existing roadway alignments.

#### Traffic Analysis -

Capacity analysis or level of service (LOS) analysis is used to evaluate the alignment alternatives. Level of Service rating ranges from A to F. LOS A indicates the best traffic conditions, LOS E indicates the intersection is at capacity and LOS F indicates traffic at the intersection experiences long delays. Capacity analysis is performed on unsignalized intersections and signalized intersections depending on the alternative.

The Indiana Manual on Uniform Traffic Control Devices (MUTCD) establishes traffic volume warrants (minimums) that must be met for an eight hour period during the day before a traffic signal or all-way stop signs can be installed. The intersection of Greyhound Pass and Greyhound Court/Greyhound Plaza will likely warrant a traffic signal within the next year and a traffic signal will be warranted with the increase in traffic due to the Clay Terrace development. Signalized intersection capacity analysis is used at this intersection. The intersection of Greyhound Pass and Western Way is analyzed using the unsignalized capacity analysis.

All of the alternatives share common geometry at the Greyhound Pass/Greyhound Court/Greyhound Plaza intersection. Signalized capacity analysis is used for this location to compare the operation of the intersection using the existing geometry versus the operation of the intersection using the proposed geometry.

It is difficult to improve the operation of the intersection of Greyhound Pass/Western Way by adding lanes because of geometric constraints along Western Way and along the north section of Greyhound Pass. Western Way is three lanes wide between 146<sup>th</sup> Street and Greyhound Pass with the center lane used for left turns. Greyhound Pass to the north is two-lanes wide. In the design year, it is anticipated that up to 850 vehicles per hour will travel north on Western Way. Using the existing Western Way roadway width, the greatest improvement in operations would be gained by converting the center left turn lane into a northbound through lane. The intersection of 146<sup>th</sup> Street and Western Way limits the conversion of the left turn lane all the way to the south end because of the single northbound lane, the median and the southbound left

turn lane at the 146<sup>th</sup> Street intersection. The width of Western Way is sufficient to develop two northbound lanes on the approach to the Greyhound Pass intersection for all alternatives.

All-way stop sign control warrants and signal warrants have been checked for the various configurations of the Greyhound Pass/Western Way intersection. With the existing intersection configuration and with a growth rate of 1.5% per year, future traffic volumes will be sufficient to satisfy the all-way stop control warrant sometime within the next 15 years. With the opening of the Clay Terrace shopping center, all-way stop control will be warranted the day the shopping center is opened.

Traffic volumes on Greyhound Pass are relatively low north of the intersection at Western Way. In the design year of 2012, approximately 180 vehicles per hour approach the intersection from the north and approximately 160 vehicles per hour head north on this section of roadway during the PM peak hour. The development at Clay Terrace would not have an affect on the north Greyhound Pass traffic (the minor approach to the intersection); therefore traffic increases will only be a result of normal traffic growth. The Western Way intersections in Alternative No. 1 and Alternative No. 2 do not warrant all-way stop control. These intersections will only require two-way stop control even with the opening of the Clay Terrace shopping center.

The Greyhound Pass/Western Way intersection alternatives have been checked for traffic signal warrants. The existing intersection configuration does not meet warrants for a traffic signal using existing traffic. With development traffic, the intersection meets warrants for 6 out of 8 hours required for the warrant. With normal growth it is anticipated that a signal will be warranted for all alternatives sometime within 10 years of the projected traffic volumes (or by 2022).

The unsignalized capacity analyses for the Greyhound Pass/Western Way intersection alternatives are summarized in the following table:



Alternative/Time Period	Two-Way Stop Level of Service	All-Way Stop Level of Service
Alternative No. 1, Noon	F for SB Approach	
Alternative No. 1, PM	F for SB Approach	
Alternative No. 1 with Added Lanes, Noon	D for SB Approach	
Alternative No. 1 with Added Lanes, PM	F for SB Approach	
Alternative No. 2, Noon	F for SB Approach C for NB Approach	
Alternative No. 2, PM	F for SB Approach C for NB Approach	
Alternative No. 2 with Added Lanes, Noon	F for SB Approach C for NB Approach	
Alternative No. 2 with Added Lanes, PM	F for SB Approach C for NB Approach	
Alternative No. 3 (Existing), Noon	D for NB Approach	F
Alternative No. 3 (Existing), PM	E for NB Approach	F

The signalized capacity analysis for the Greyhound Pass/Greyhound Court/Greyhound Plaza intersection is summarized in the following table:

Alternative/Time Period	Level of Service
Existing Lane Configuration, Noon	C
Existing Lane Configuration, PM	C
Proposed Lane Configuration, Noon	B
Proposed Lane Configuration, PM	B

#### Alternative Analysis -

The intersection of Greyhound Pass and Western Way operates best under the conditions of Alternative No. 3-existing lane geometry and two-way stop control for northbound Western Way. The northbound approach to the intersection operates at Level of Service (LOS) D during the noon peak hour and LOS E during the PM peak hour. As an all-way stop intersection, it would operate at LOS F during the noon and PM peak hours. If operated as an all-way stop intersection, westbound traffic would likely back up into the Greyhound Court/Greyhound Plaza intersection

Alignment Alternative No. 1 operates at LOS F for the southbound approach for both the noon and PM peak hours. Alternative No. 2 operates at LOS F for the southbound approach and LOS C for the northbound approach. Adding additional through lanes to the intersection of Western

Way and Greyhound Pass does not change the LOS for Alternative No. 2 and would improve the southbound approach to LOS D for Alternative No. 1.

Intersection alignment Alternatives No. 1 and No. 2 do not perform as well as the Alternative No. 3 alignment for the Western Way/Greyhound Pass intersection in terms of stop controlled Level of Service. The addition of lanes to the Alternative No. 1 and No. 2 intersections do not significantly improve LOS. Therefore, it would not be worth the expense in terms of right-of-way and construction costs to pursue these alternatives. Uncertainties regarding future improvements to US 31 and its potential impact on Greyhound Pass should limit the investment on Greyhound Pass since improvements to Greyhound Pass would likely be modified to accommodate the US 31 construction.

Even though future development traffic can be handled by a two-way stop controlled intersection at Western Way, a signal will permit the progression of westbound traffic through the Greyhound Court intersection and then through the Western Way intersection. The signal, coordinated with adjacent signals, will eliminate the possibility of backups occurring at the Western Way intersection created by an all-way stop. Eastbound traffic can be platooned as well and a signalized intersection allows for double northbound right turns at the Western Way intersection. To facilitate coordination, the signals at Western Way and Greyhound Court will be interconnected with the US 31 traffic signal system.

Controlled by a traffic signal, the intersection at Greyhound Pass and Greyhound Court will operate at a LOS C during both the noon and PM peak hours with the existing number of lanes and the through/left lanes converted to left turn lanes. With the proposed left turn and through lane additions, the intersection will operate at LOS B during both peak hours.

The additional through lanes on Greyhound Pass are needed for lane continuity and traffic volume capacity between the US 31 and Western Way intersections. There will be approximately 800 eastbound vehicles per hour between these intersections and two lanes are needed to handle this volume of traffic. For westbound traffic, two through lanes are needed to receive traffic coming across the US 31 intersection from Greyhound Pass.

#### Recommendations -

As a result of our analysis, Alternative No. 3 is the recommended alignment alternative for Greyhound Pass. This alternative will have the least roadway construction costs and will handle traffic more efficiently than the other alternatives. It is also recommended that a traffic signal be installed at the Greyhound Pass/Greyhound Court/Greyhound Plaza intersection since traffic will increase sufficiently to warrant a signal at this location within the next year. Although traffic volumes at the Greyhound Pass/Western Way intersection do not warrant a traffic signal, it is still recommended that a traffic signal be installed at this intersection to provide progression along Greyhound Pass and Western Way.

The construction of this project can be phased to accommodate funding availability. A traffic signal can be installed at the Greyhound Pass/Greyhound Court/Greyhound Plaza intersection using the existing pavement and converting the left lanes on Greyhound Pass to left turn lanes. Under this configuration, the intersection will operate at LOS C. The disadvantages of using the existing lane geometry include the lack of left turn lanes on Greyhound Court and the Greyhound Plaza driveway and the left turn lane offsets on Greyhound Pass. These less than ideal left turn lane geometries can contribute to an increase in accidents due to conflicts with the left turns and through vehicles northbound and southbound and because of the restricted visibility around the opposing left turning vehicles on Greyhound Pass.

As additional funding becomes available, a traffic signal can be installed at the Greyhound Pass/Western Way intersection. Using the existing lane geometry, the northbound Western Way lane assignments will be limited to the existing left turn and right turn. There will not be sufficient receiving lanes on Greyhound Pass to allow for double right turns on the Western Way approach to Greyhound Pass.

These traffic signal installations can be designed so that they remain operational after Greyhound Pass is widened as long as the overall roadway design locates the signal equipment to allow for the future roadway construction. To accommodate this design approach, right of way or easements will be needed for the signal poles and controller.

Preliminary construction costs of our recommended improvements are presented below to show the level of magnitude costs that can be anticipated for this project. Costs are separated into independently usable construction phases. Costs do not include right-of-way acquisition or design.

<b>Construction Phase</b>	<b>Cost</b>
Greyhound Pass/Greyhound Court Traffic Signal	\$ 80,000
Greyhound Pass/Western Way Traffic Signal	\$ 70,000
Roadway Widening and Resurfacing	\$ 450,000
Subtotal	\$ 600,000
Contingencies (15%)	\$ 90,000
Total	\$ 690,000

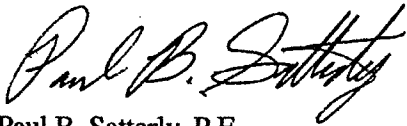
Construction costs assume the reuse of existing pavement and retaining the vertical profile of the existing roads. The existing pavement will be widened with full depth asphalt. Drainage and curb and gutters are included as part of the estimate. Removal of the "hump" profile on Greyhound Pass will be at additional cost. Retaining walls (modular block) will be required along the northwest quadrant of Greyhound Pass and Greyhound Court and between Greyhound Pass and the Greyhound Plaza shopping center parking lot. The cost of these retaining walls are included in the estimate.

West Greyhound Pass Traffic Study  
March 28, 2003  
Page 8

Please contact us if you have any questions or require additional information. We look forward to discussing this project with you and helping you plan for the next phase.

Sincerely,

HNTB CORPORATION

A handwritten signature in black ink, appearing to read "Paul B. Satterly", written in a cursive style.

Paul B. Satterly, P.E.  
Project Manager

PBS/ps

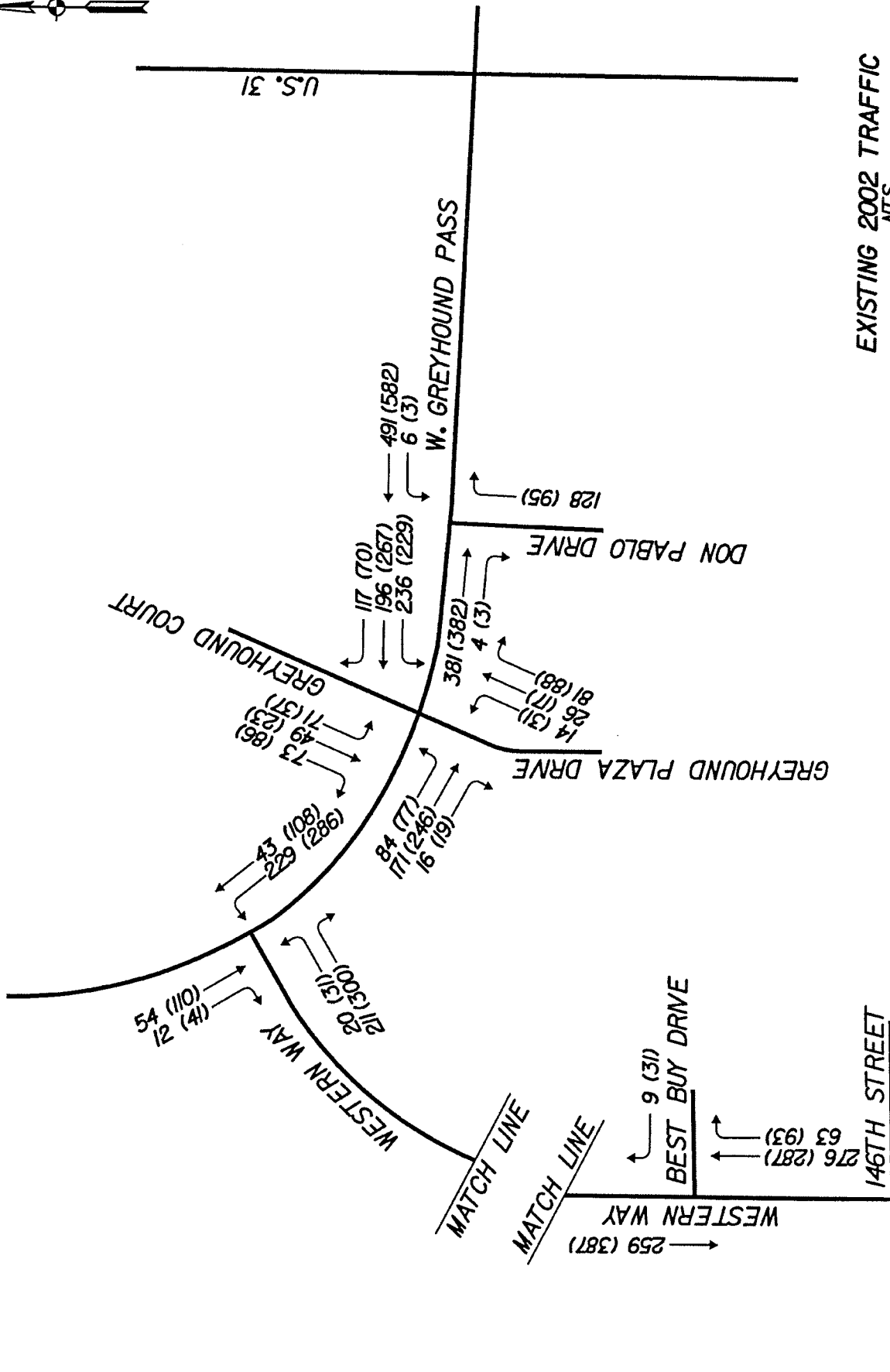
Enclosures

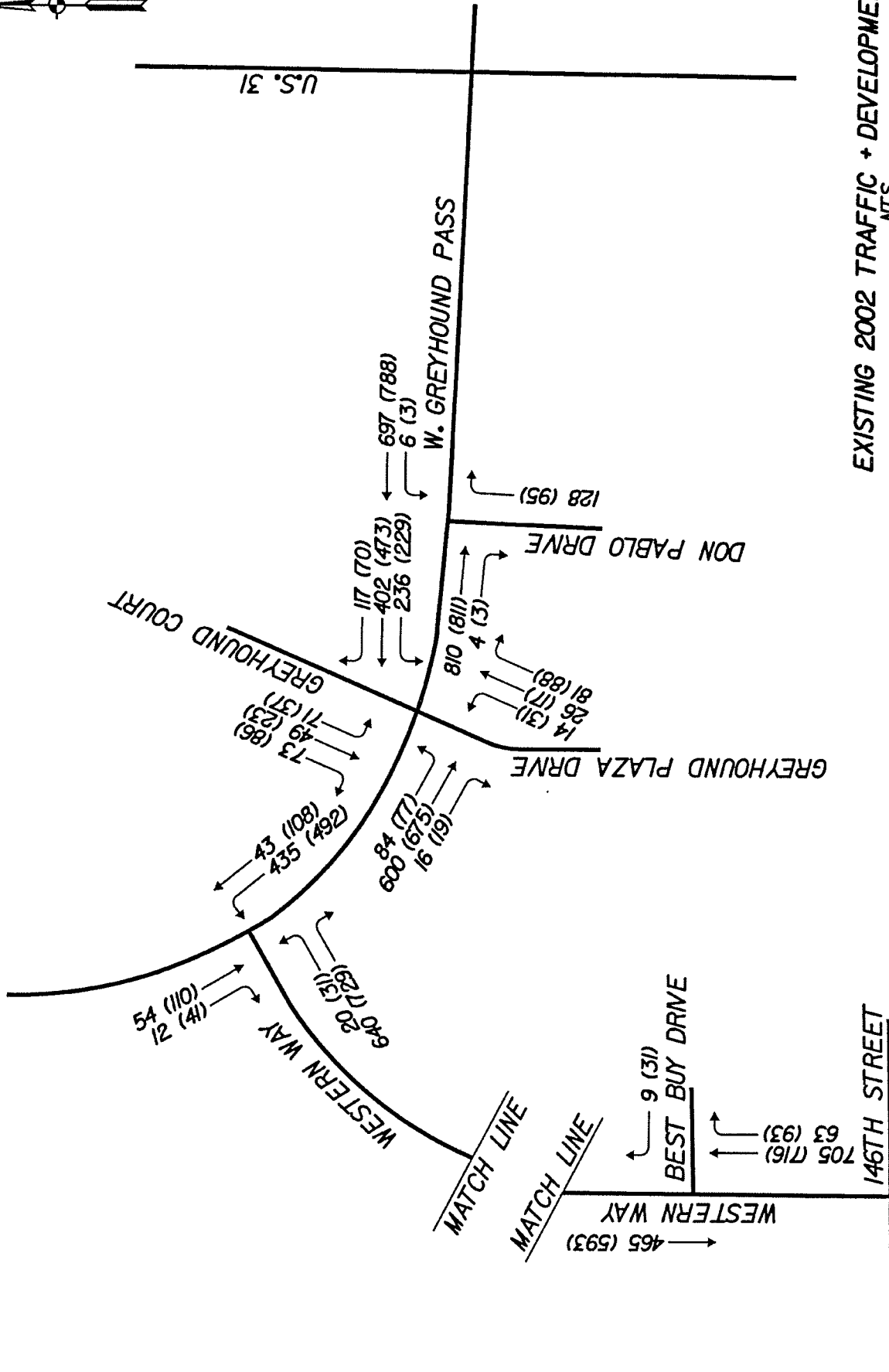
cc: Ms. Patricia Spence, HNTB

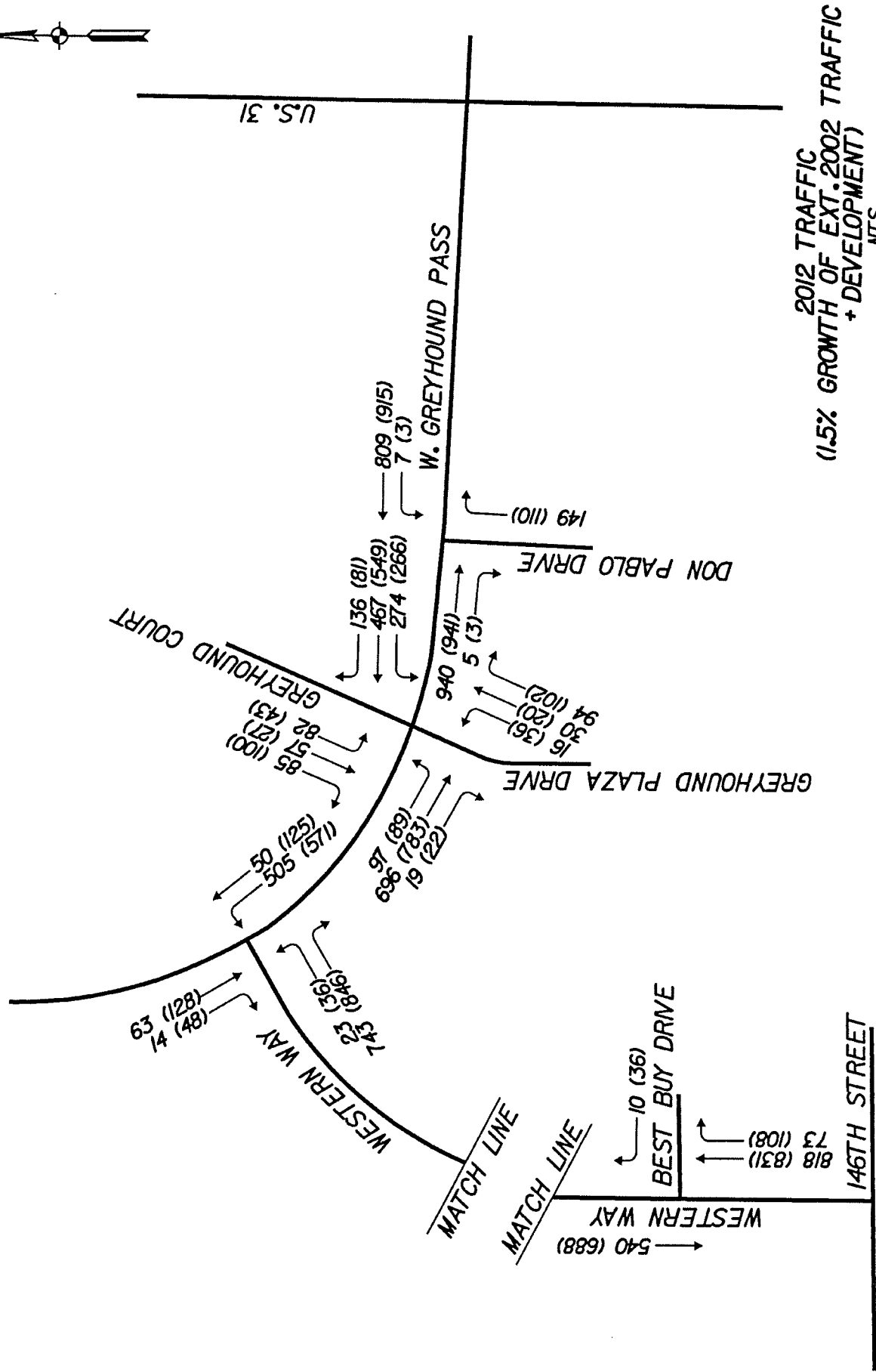
**EXISTING 2002 TRAFFIC  
NTS**

**LEGEND**

000 NOON PEAK HOUR VOLUME  
(000) PM PEAK HOUR VOLUME







January 20, 2006

Mr. Bruce Hauk  
Director of Public Works  
Town of Westfield  
2706 E. 171st Street  
Westfield, Indiana 46074

Re: Westfield TIF Projects  
East Access Road Traffic Study  
Final Report  
HNTB Project No. 42619-DS-001-005.21

Dear Mr. Hauk:

We have concluded our traffic study of the East Access Road between Greyhound Pass and 151<sup>st</sup> Street. This letter report summarizes our findings and recommendations. This study establishes basic geometric and traffic control recommendations that will be refined during the design process.

#### I. Background

The purpose of this analysis is to develop lane configuration and traffic control recommendations for the design of the proposed East Access Road. This road will be constructed approximately 1200 feet east of US 31, from Greyhound Pass to 151<sup>st</sup> Street. This road is expected to serve as a collector route for local trips between 146<sup>th</sup> Street and 151<sup>st</sup> Street. These trips currently use US 31 to the west, Carey Road to the east, travel through the adjacent Village Park Plaza (Marsh/WalMart) parking lot, or travel through the Silver Thorne subdivision using Oak Road.

This study assumes that US 31 will not be upgraded to a limited access freeway. A future upgrade will likely reduce traffic demand on the local road network by providing frontage roads along US 31 between 146<sup>th</sup> Street and 151<sup>st</sup> Street. Any improvements recommended as part of this study will therefore be sufficient to accommodate the reduced demand after freeway construction.

There is a possibility of relocating the Cool Creek Park access drive to a location opposite the proposed East Access Road at 151<sup>st</sup> Street. While this study did not specifically consider that drive relocation, the relocation could easily be accommodated by the recommended intersection configurations.

#### II. Existing Conditions

The study area is generally defined as the commercial area bounded by US 31 on the west, 146<sup>th</sup> Street on the south, 151<sup>st</sup> Street on the north, and residential development to the east. This residential boundary is approximately 0.25 to 0.5 miles east of US 31. The following roadways are included in the study area:



- US 31 is a multilane state route with shoulders, center median barrier and limited access. US 31 runs north/south through the study area with three (3) through travel lanes in each direction. There is no direct property access from US 31.
- 146<sup>th</sup> Street is a 4-lane, undivided, curbed street running east/west through the study area. It passes over US 31 on a bridge structure.
- Greyhound Pass is a 4-lane, undivided/undivided curbed street that runs north from 146<sup>th</sup> Street, turns 90 degrees, and then runs west to and across US 31.
- 151st Street is a 2 to 4-lane undivided road that runs east/west through the study area.
- Oak Road (147<sup>th</sup> Street) is a 4-lane undivided east/west street between Greyhound Pass on the west and the Silver Thorne residential development on the east.
- Thatcher Lane is a 2-lane north/south street that intersects 151<sup>st</sup> Street approximately 400 feet east of US 31. Thatcher Lane is not a through street, but provides access to the Village Park Plaza shopping center south of 151<sup>st</sup> Street and other commercial properties north of 151<sup>st</sup> Street.

The following existing intersections are included in the study, with existing traffic control shown in parentheses:

- US 31 & Greyhound Pass (signal)
- US 31 & 151<sup>st</sup> St. (signal)
- 146<sup>th</sup> St. & Greyhound Pass/US 431 Exit Ramp (signal)
- Greyhound Pass & Marsh Driveway (signal)
- Greyhound Pass & Oak Road (stop on Oak Road. Signal planned in 2006)
- 151<sup>st</sup> St. & Thatcher Lane (signal)

2002 Synchro traffic simulation software files were obtained from the Indiana Department of Transportation as part of a previous study. These files contain information regarding 2002 peak hour traffic volumes and signal timings at the two US 31 intersections and the signal at 151<sup>st</sup> St. and Thatcher Lane, which is interconnected to the US 31 signals. Turning movement volumes at locations other than US 31 were obtained from counts conducted in 2004 and 2005 by the Town of Westfield. There are volume discrepancies between the US 31 count data obtained from INDOT and the adjacent intersections counted by the Town of Westfield and HNTB. The latter counts are considered more accurate, as they are more recent. However, the US 31 counts were also used in the study because the intent of including these intersections is to identify possible operational impacts on the East Access Road. Operations at these intersections were not analyzed for possible improvements.

The noon and evening peak hours were determined to be the critical time periods for analysis of the study area intersections. **Figure 1** shows the existing turning movement volumes at the local study intersections during the noon and evening peak hours.

### III. Traffic Forecast

The recommendations of this study are based on traffic analysis conducted for the projected noon and evening traffic conditions during the design year of 2025. 2025 peak hour traffic forecasts are developed for the design year based on existing peak hour volumes. The existing volumes are first adjusted to reflect changes in network traffic patterns with the construction of the East Access Road and are then adjusted to reflect expected travel demand growth between 2005 and 2025. These steps are described below.

#### A. Reassignment of Existing Trips

Existing turning movement counts are adjusted to account for the estimated reassignment of vehicle trips upon the opening of the East Access Road. Adjustments are made by subtracting volumes from the turning movements along particular existing network routes and adding them to turning movement volumes along the new routes. Adjustments are made based on the following assumptions:

1. A portion of the vehicle trips entering and exiting the Village Park Plaza shopping center are actually through trips traveling between Greyhound Pass and 151<sup>st</sup> Street that would use the East Access Road if it were in place.
2. Some of the traffic that currently uses Oak Road or Carey Road to travel north and south would instead use the East Access Road if it were in place.
3. Diversions to the East Access Road will occur to avoid congestion on US 31 for motorists traveling between 151<sup>st</sup> Street and Greyhound Pass/146<sup>th</sup> Street.

2005 reassigned peak hour traffic volumes are shown in **Figure 2**.

#### B. Growth to Design Year

Peak hour traffic volumes were forecasted for a design year of 2025 using a 1% annual growth rate of the reassigned existing traffic volumes. These Volumes are shown in **Figure 3**

### IV. Design Alternatives

Three alternatives were evaluated for the design of the East Access Road intersection with Greyhound Pass. Schematics of these intersection alternatives are shown in **Figures 4, 5 and 6**.

- Alternative A—the East Access Road intersects Greyhound Pass immediately west of its existing 90° bend, between the access drive to the Marsh loading docks and the existing retention pond. The entrance to the shopping center parking lot on the south side of Greyhound Pass (near Heavenly Ham) is relocated so that it is opposite the East Access Road. Greyhound Pass forms the east/west intersection approach and remains as the through movement around the curve. The Marsh loading dock access from Greyhound Pass

immediately adjacent to the proposed East Access Road intersection should be either closed or modified to allow right-out access only.

- Alternative B—the south leg of Greyhound Pass and the East Access Road combine to form a north/south through street. The west leg of Greyhound Pass is the stem of a “T” intersection with this north/south street. This may require a minor realignment of the south leg. The north/south movement would be designated as the through movement, and the connection between the south and west legs of Greyhound Pass would be designated as a turning movement. In this alternative, the existing loading dock drive on the north and the existing shopping center parking lot access on the south would be either closed or designated as right-in, right-out drives.
- Alternative C—Oak Road is relocated north through the Menard’s parking lot to form the east leg of a 4-way intersection with Greyhound Pass and the East Access Road. This would combine the existing intersection of Greyhound Pass with Oak Road and the proposed intersection of Greyhound Pass with the East Access Road. As in Alternative B, the south approach of Greyhound Pass would be realigned. The existing Marsh loading dock drive on the north side of Greyhound Pass and the existing parking lot access on the south would be either closed or designated as right-in, right-out drives.

#### V. Alternatives Analysis

Traffic analyses were performed in order to determine the lane configurations and traffic control required to provide acceptable operation of the East Access Road under each design alternative. The procedures and results of these analyses are described below.

##### **A. Traffic Control Warrants**

Preliminary traffic signal warrant analyses were performed for the intersections of the East Access Road with Greyhound Pass and 151<sup>st</sup> Street. The warrant analyses were based on forecast peak hour volumes with the East Access Road in place. The signal warrant analysis criteria of the 2003 Federal Manual on Uniform Traffic Control Devices (MUTCD) and Indiana Supplement were used for these analyses.

Definitive application of the MUTCD signal warrant criteria requires knowledge of actual traffic volumes at an intersection over the eight highest hours of a typical day. In this study, however, only projected peak hour volumes are known. To determine the likelihood that a signal would be warranted at each of these intersections, the projected approach volumes in the eighth highest hour of the typical day was estimated to be 65 percent of the projected peak hour volumes. Because these analyses were based on projected peak hour volumes with the new road in place, they provide a preliminary indication of whether traffic signals will be warranted.

The analyses showed that a traffic signal is likely to be warranted at the intersection of the East Access Road with Greyhound Pass at the time the East Access Road is constructed. This intersection is expected to meet the "Interruption of Continuous Traffic" warrant for a traffic signal. The intersection of the East Access Road with 151<sup>st</sup> Street is expected to be close to warranting a signal at initial construction, but may fall just short of meeting volume warrants due to widening 151<sup>st</sup> Street to four (4) travel lanes through the intersection. However, traffic signal control of this intersection will provide less delay for traffic on the East Access Road and will therefore be more likely to divert local traffic away from existing cut-through routes. A signal at this intersection will provide pedestrian access and a greater level of pedestrian safety at the entrance to Cool Creek Park.

#### B. Capacity and Level of Service

Computer software analysis was used to predict the 2025 noon and evening peak hour traffic operating conditions and the Highway Capacity Levels of Service (LOS) under the three intersection configuration alternatives. The LOS is a quantitative measure that describes the quality of operating conditions within the traffic stream and the perception of motorists. The LOS of an intersection is based on the total delay experienced by vehicles waiting to travel through the intersection. The LOS is based on a scale of "A to F", with "A" being the best operating condition. A peak hour LOS of "D" is typically considered the minimum acceptable operating condition at an intersection. **Table 1** describes the specific LOS criteria for both signalized and unsignalized intersections. For signalized intersections, an overall intersection LOS can be calculated. For unsignalized intersections, the LOS is only appropriate for describing traffic operations for movements that must stop or yield.

**Table 1. Level of Service Criteria For Signalized and Unsignalized Intersections**

LOS	Average Delay (Seconds/Vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	$\leq 10$	$\leq 10$
B	$> 10$ and $\leq 20$	$> 10$ and $\leq 15$
C	$> 20$ and $\leq 35$	$> 15$ and $\leq 25$
D	$> 35$ and $\leq 55$	$> 25$ and $\leq 35$
E	$> 55$ and $\leq 80$	$> 35$ and $\leq 50$
F	$> 80$	$> 50$

Source: Transportation Research Board, *Highway Capacity Manual*, 2000

The Synchro Version 6 and SimTraffic Version 6 software packages were used to determine the lane configurations that would provide acceptable LOS for each intersection alternative. The results of the operational analyses are summarized in **Table 2**. The proposed turn bay lengths shown in the table are the vehicle storage lengths only, excluding entrance taper lengths. The lengths for each turn bay is based on the Synchro estimate of the length required to prevent blockage of the turn bay entrance or spillback into the adjacent through lane 95% of the time during the peak hour. The lengths of the left turn bays for the northbound East Access Road at 151<sup>st</sup> Street and the southbound East Access Road

at Greyhound Pass were increased from the Synchro estimates because SimTraffic simulation runs repeatedly showed longer queue lengths than were reported in Synchro.

**Table 2. Recommended Intersection Approach Lanes and 2025 Noon/PM Peak LOS**

East Access Road & Greyhound Pass														
Alternative		Eastbound			Westbound			Northbound			Southbound			Overall LOS
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
A	Lanes	1	2	0	0	2	1	0	1	0	1	1	0	A/A
	Bay Storage (ft)	120*					100				120			
	Approach LOS	A/A			A/A			B/B			C/C			
B	Lanes	1	--	2	--	--	--	2	1	--	--	1	1	B/B
	Bay Storage (ft)	90*						200					75	
	Approach LOS	C/D			--			A/A			B/B			
C	Lanes	1	1	1	1	1	0	2	1	0	1	2	0	B/B
	Bay Storage (ft)	140*						225			100			
	Approach LOS	B/B			B/C			B/B			C/D			
East Access Road & 151st Street														
Alternative		Eastbound			Westbound			Northbound			Southbound			Overall LOS
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
A	Lanes	--	2	0	1	2	--	1	--	1	--	--	--	A/A
	Bay Storage (ft)				100			150						
	Approach LOS	A/A			A/A			B/B			--			
B	Lanes	--	2	0	1	2	--	1	--	1	--	--	--	A/B
	Bay Storage (ft)				100			150						
	Approach LOS	A/A			A/A			B/C			--			
C	Lanes	--	2	0	1	2	--	1	--	1	--	--	--	A/A
	Bay Storage (ft)				100			150						
	Approach LOS	A/A			A/A			C/C			--			

"0" lanes indicates that the movement is from a shared lane.

"--" indicates that the movement does not exist.

\* Desirable bay length shown. Limited by turn bay length at adjacent Marsh Drive intersection.

### C. Summary Comparison of Alternatives

The following statements summarize the advantages and disadvantages of each of the three intersection alternatives for the East Access Road.

#### Alternative A Advantages

- Least impact to existing intersection configurations.
- Highest volume movements following Greyhound Pass are given priority as through movements.
- Drive into shopping center on south (near Heavenly Ham) can maintain full access if relocated to East Access Road intersection.

Alternative A Disadvantages

- Results in three (3) closely-spaced traffic signals on Greyhound Pass.
- The Marsh loading dock drive will be restricted to a right turn exit.

Alternative B Advantages

- The "T" intersection configuration provides good operation for north/south through traffic.

Alternative B Disadvantages

- Aligning Greyhound Pass with East Access Road could impact the Ashley Furniture loading docks or the existing detention pond north of Greyhound Pass.
- Three (3) closely-spaced traffic signals on Greyhound Pass.
- High volume movements following Greyhound Pass will require northbound double left turn lanes and will impact signal operation.
- Access into the south shopping center parking lot must be right-in/right-out or closed.
- The Marsh loading dock drive will be restricted to a right turn exit.

Alternative C Advantages

- Requires two (2) closely spaced signals instead of three (3).
- Provides good operation for north/south through traffic and east/west through traffic.

Alternative C Disadvantages

- Realignment of Oak Road will require taking a significant portion of the Menard's parking lot.
- Aligning Greyhound Pass with the East Access Road could impact the Ashley Furniture loading docks or the existing detention pond.
- High volume movements following Greyhound Pass will require northbound double left-turn lanes and will impact signal operation.
- Access into the south shopping center parking lot must be right-in/right-out or closed.
- The Marsh loading dock drive will be restricted to a right turn exit.

VI. Town Council Comments

Draft study results and recommendations were presented to the Westfield Town Council on January 9, 2006. Based on the study findings, HNTB recommended that the East Access Road be designed to provide one travel lane in each direction with the provision for a center turn lane. HNTB further recommended that the intersection of the East Access Road with Greyhound Pass be designed using the Alternative A alignment. During the discussion, Council members expressed concerns regarding traffic queuing and circulation within the shopping center parking lot south of Greyhound Pass. They requested that HNTB evaluate the possibility of moving the entrance that exists near Heavenly Ham to a new location opposite Oak Road instead of aligning it opposite the East Access Road. They also

requested that HNTB evaluate the possibility of providing additional northbound exit lanes from the shopping center onto Greyhound Pass at the Marsh Drive traffic signal.

#### VI. Recommendations

Based on the analyses performed for this study and considering the discussions with the Westfield Town Council, the following recommendations are provided for the design of the proposed East Access Road:

1. The East Access Road should be designed to provide one travel lane in each direction, plus a center turn lane
2. Pedestrian facilities should be provided along Greyhound Pass, the East Access Road and 151<sup>st</sup> Street in order to connect 146th Street to Cool Creek Park
3. The design of the East Access Road/Greyhound Pass intersection should conform with intersection alignment Alternative A.
4. The Marsh loading dock access from Greyhound Pass immediately adjacent to the proposed East Access Road intersection should be either closed or modified to allow right-out access only.
5. A traffic signal should be installed at the intersection of Greyhound Pass and the East Access Road. This signal should be coordinated with the existing signal at the Greyhound Pass/Marsh Drive intersection and the planned signal at the Greyhound Pass/Oak Road (147<sup>th</sup> Street) intersection.
6. A new traffic signal should be installed at the intersection of 151<sup>st</sup> Street and the East Access Road. Coordination of this signal with the existing signal at 151<sup>st</sup> Street and Thatcher Lane should be investigated.
7. Left turns should be prohibited from exiting the driveway from the WalMart auto center onto the East Access Road, immediately south of 151<sup>st</sup> Street.
8. The operational benefit of additional northbound lanes at the exit drive from Ashley Furniture (Marsh Drive traffic signal) should be investigated as the design proceeds. The possibility of adding lanes should be discussed with the shopping center owner.
9. The drive entrance to the shopping center parking lot should be located opposite the East Access Road (near Heavenly Ham) or opposite Oak Road depending on the comparison of these two alternative driveway alignments.

Please contact us if you have any questions or require additional information regarding these recommendations.

Sincerely,

HNTB Indiana, Incorporated

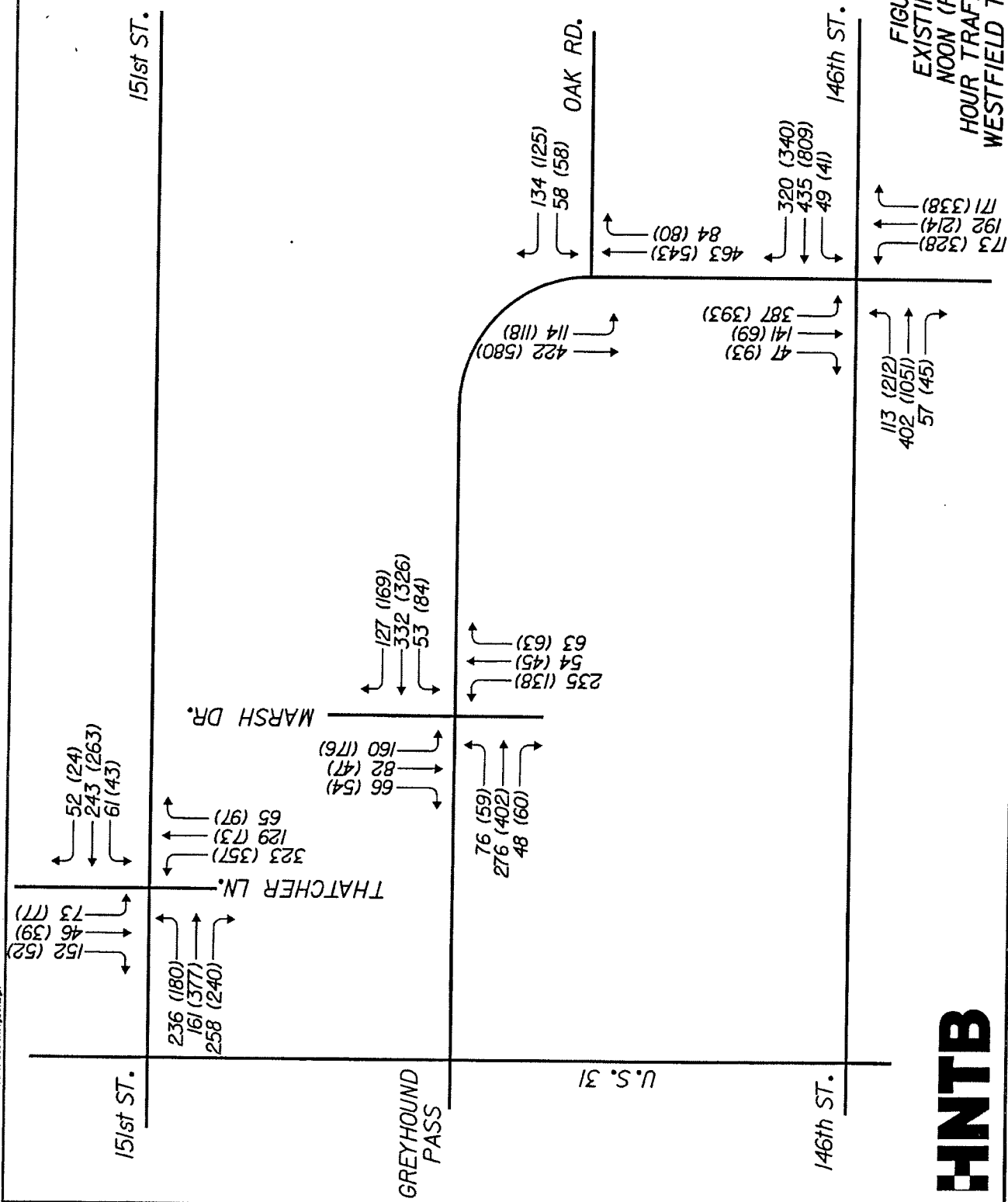
Paul B. Satterly, P.E.  
Senior Project Engineer

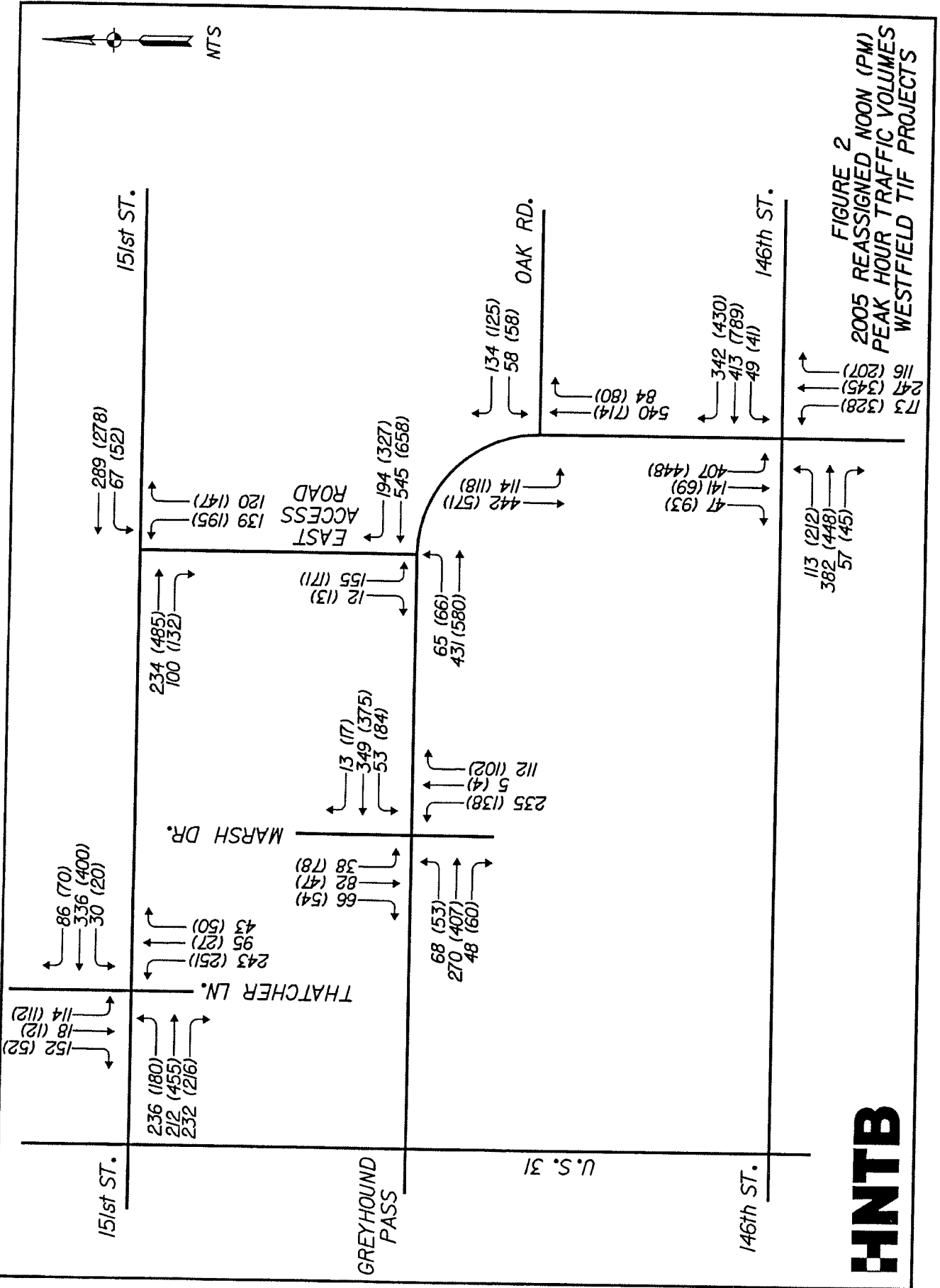
PBS/MMM/mm

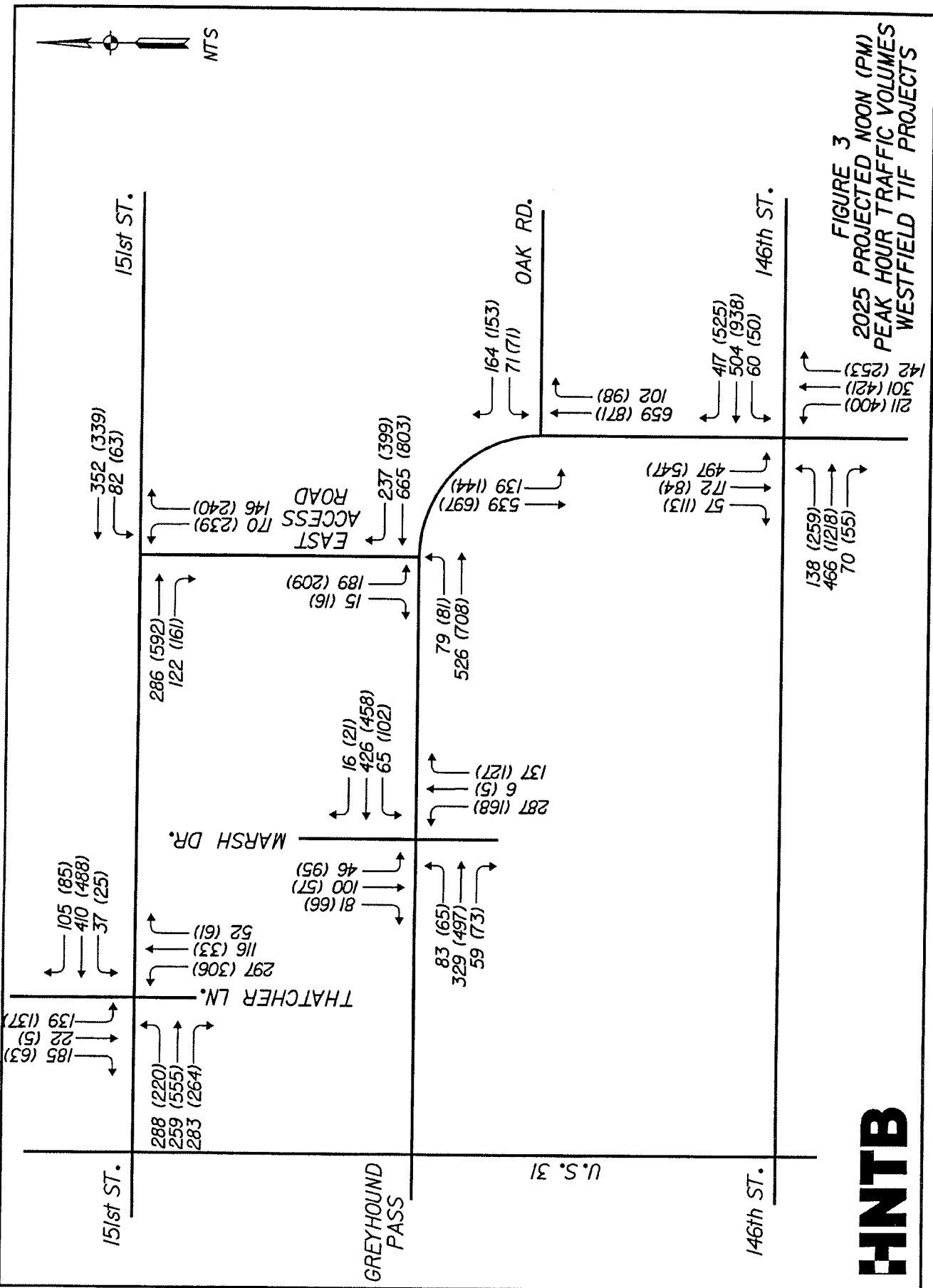
Attachments

cc: Ms. Patricia Spence, HNTB  
Mr. Matthew Miller, HNTB









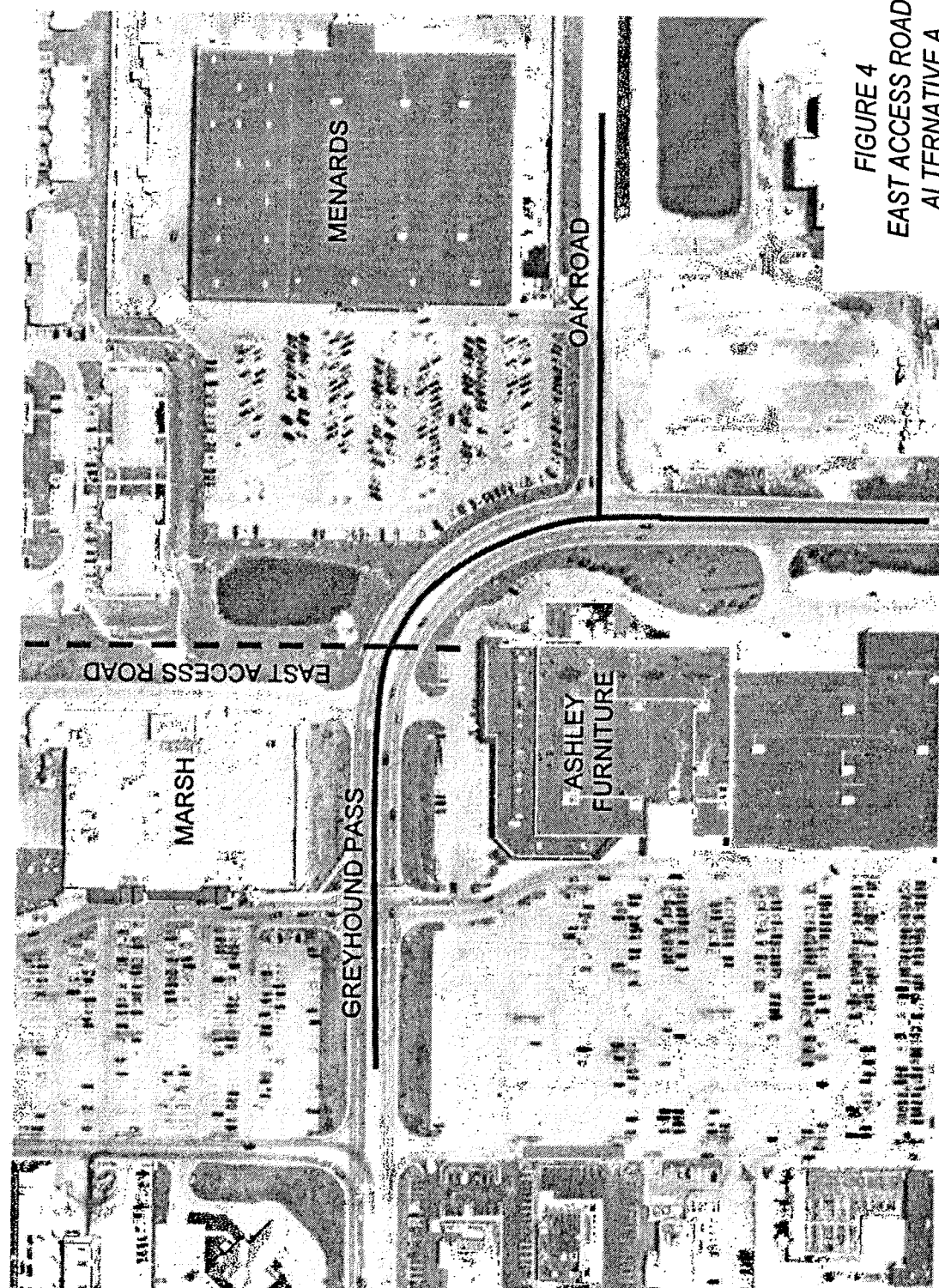
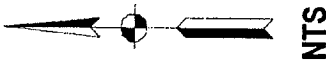


FIGURE 4  
EAST ACCESS ROAD  
ALTERNATIVE A  
WESTFIELD TIF PROJECTS

HNTB



NTS

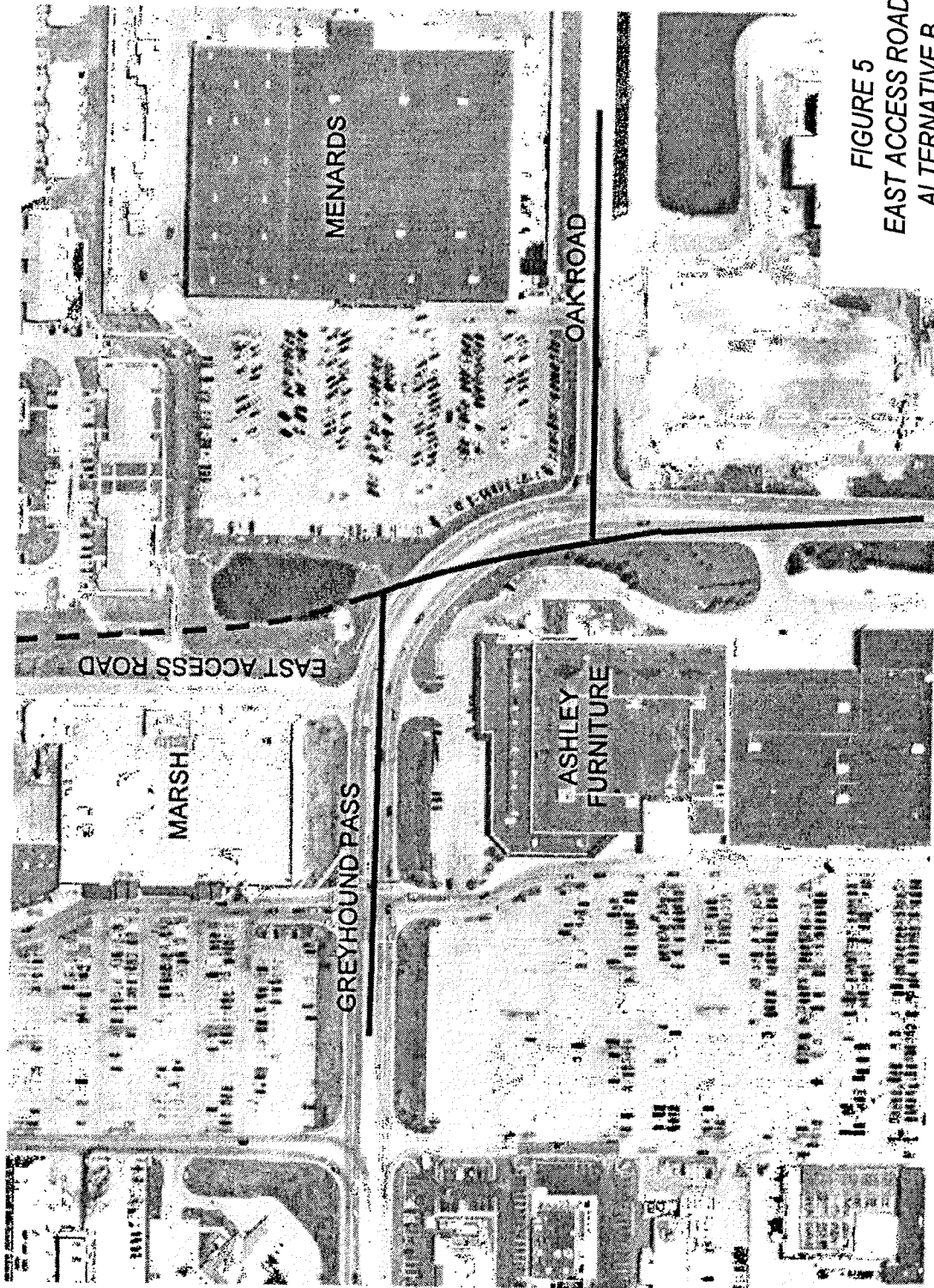


FIGURE 5  
EAST ACCESS ROAD  
ALTERNATIVE B

WESTFIELD TIF PROJECTS

**HNTB**

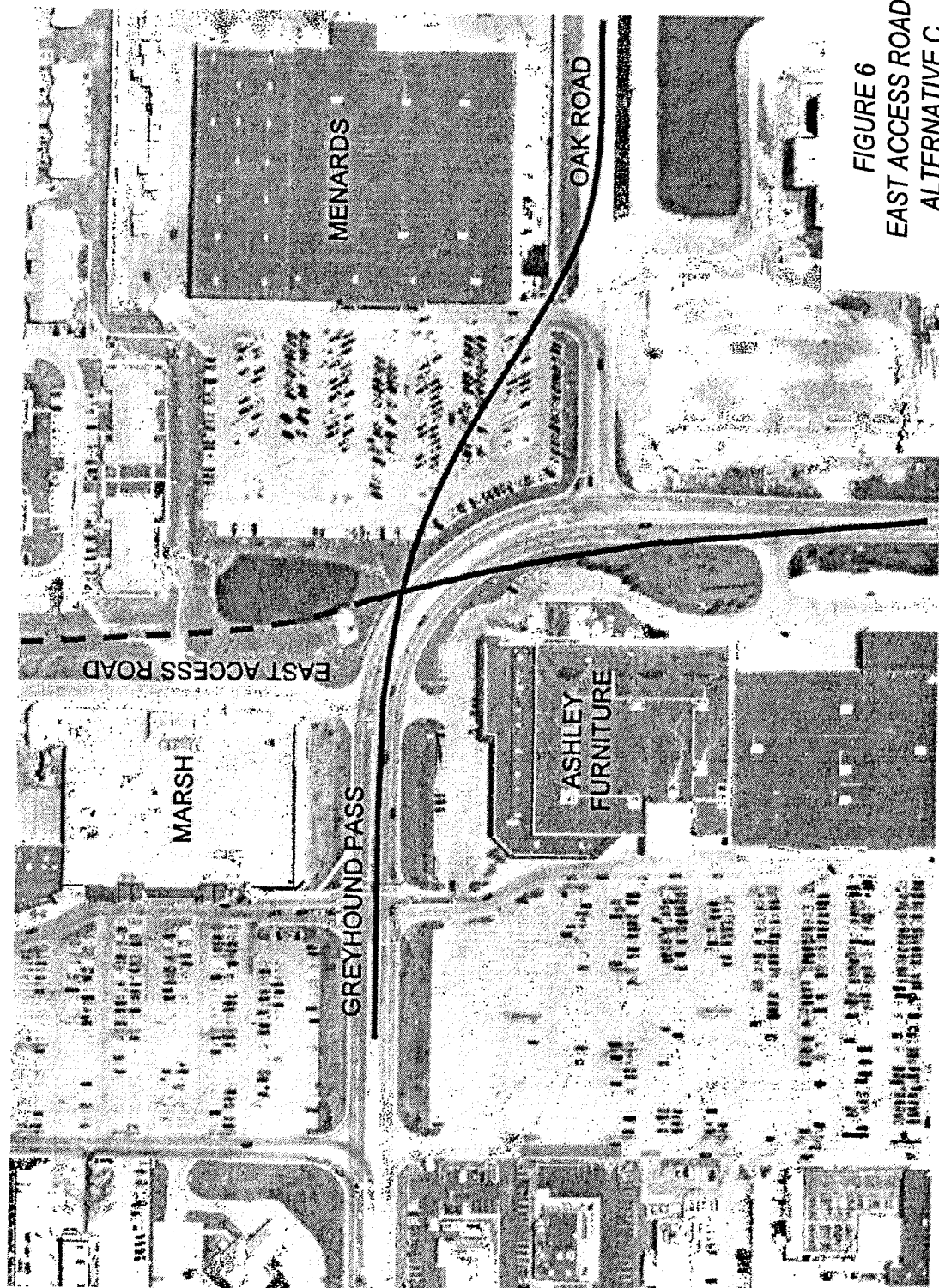
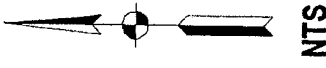
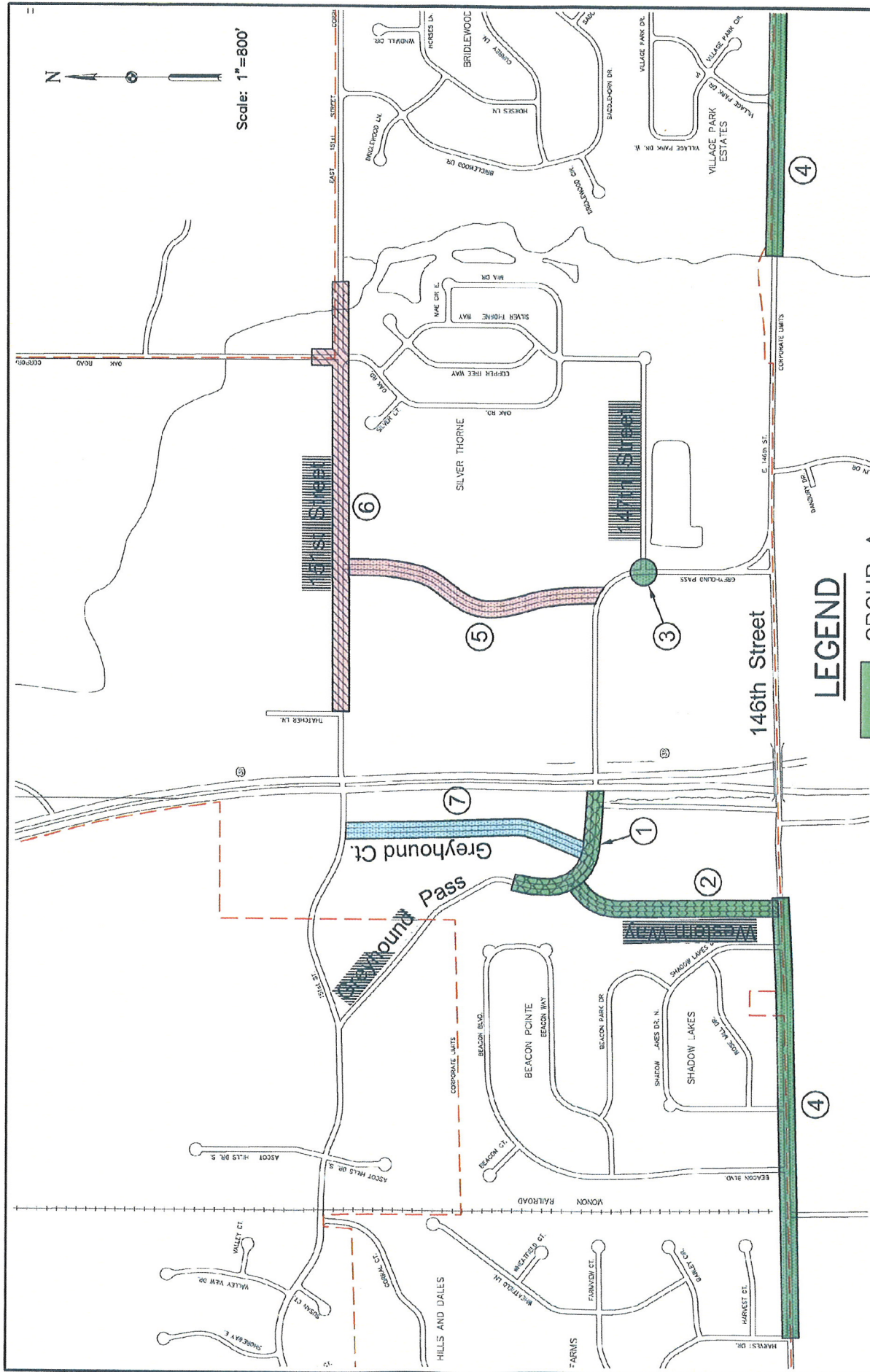


FIGURE 6  
EAST ACCESS ROAD  
ALTERNATIVE C  
WESTFIELD TIF PROJECTS

**HNTB**





# TIF PROJECTS TOWN OF WESTFIELD, INDIANA SEPTEMBER 29, 2005

## LEGEND

- GROUP A
- GROUP B
- GROUP C





# Westfield TIF Projects

## April 18, 2007

### Version #2



- LEGEND

GROUP - A

★

147th Street Signal - Summer 2007 Construction

▨

Western Way / Greyhound Pass - Spring 2008 Anticipated Construction

▨

Multi-Use Path - Constructed in 2006

GROUP - B

▨

151st Street (Carey Rd. to Setters Rd.) - Summer 2007 Construction

▨

151st Street (Thatcher Ln. to Carey Rd.) - On Hold

▨

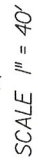
East Access Road - On Hold

GROUP - C

▨

Greyhound Court - On Hold



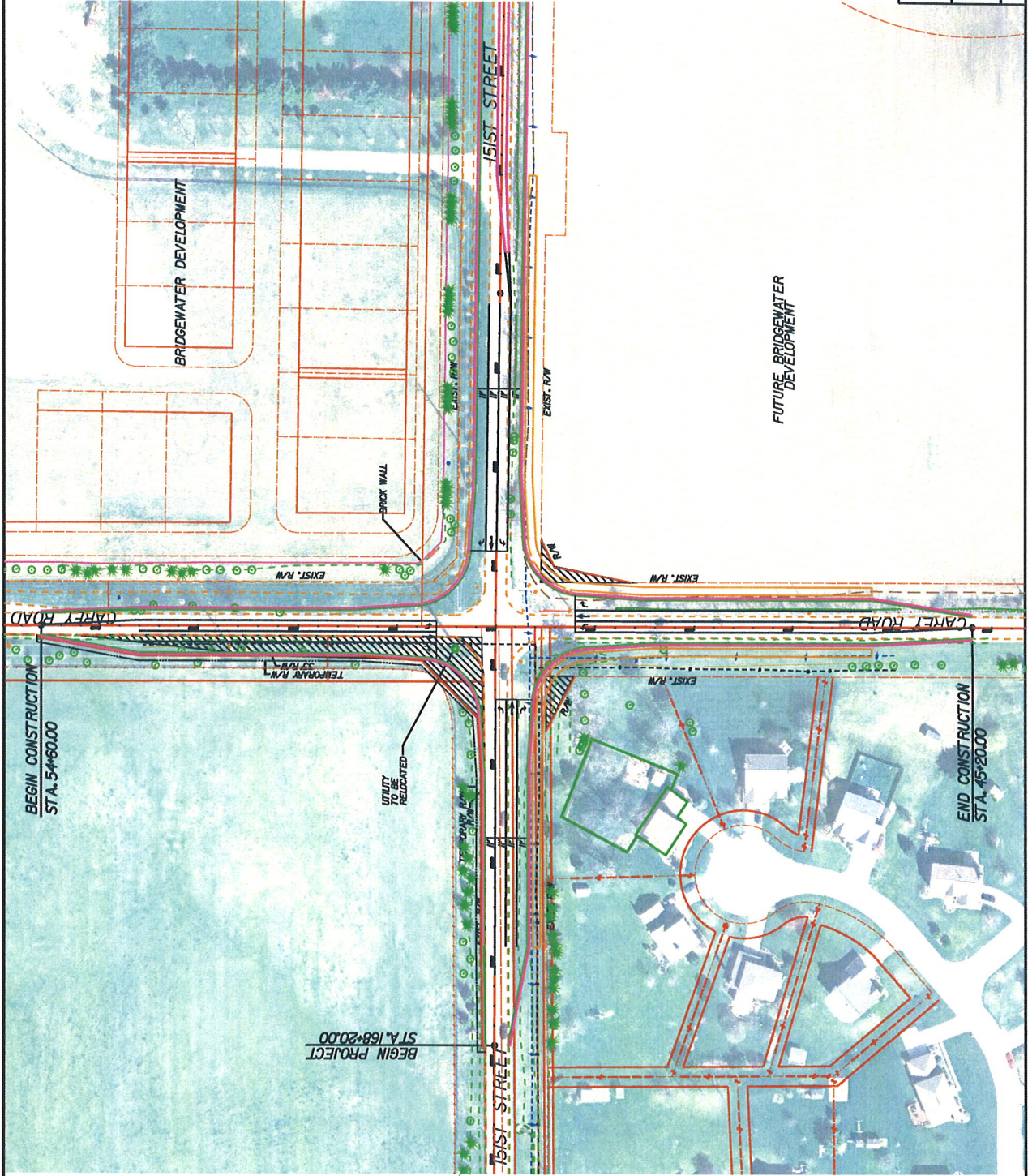


- 0.21 AC OF PROP. R/W RED'D.
- ROUNDABOUT WOULD TIE INTO EXISTING LANE CONFIGURATION OF NORTH/SOUTH CAREY RD. AND WEST OF CAREY RD.

**HNTB** HNTB CORPORATION  
111 Monument Circle, Indianapolis, Indiana 46204-5178

SHEET / OF 5





SCALE 1" = 100'

NOTE:

- 0.30 AC OF PROP. R/W RED'D.
- INTERSECTION WOULD BE INTO EXISTING LANE CONFIGURATION OF NORTH/SOUTH CAREY RD. AND WEST/EAST 151ST.

TWO LANE SIGNALIZED INTERSECTION  
PRELIMINARY PLAN  
DATE PREPARED ON MAY 9, 2007

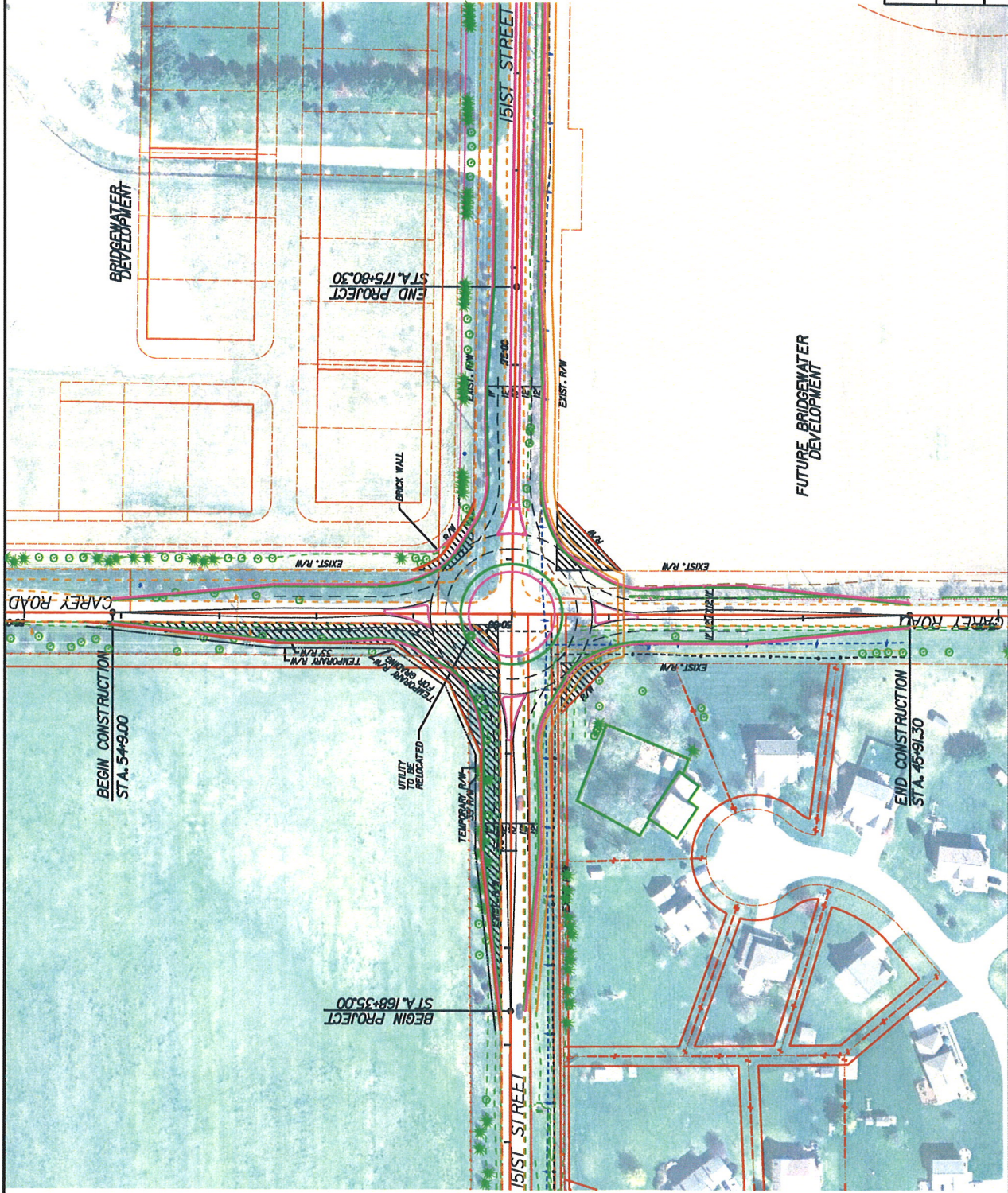
**HNTB**  
HNTB CORPORATION  
38 WASHINGTON CIRCLE, INDIANAPOLIS, INDIANA 46204-2578

SHEET 2 OF 5





SCALE 1" = 100'



NOTES:

- 0.47 AC OF PROP. R/W REQ'D.
- ROUNDABOUT FOLLOWS CORRIDOR PLAN ON CAREY ROAD

TWO LANE ROUNDABOUT  
PRELIMINARY PLAN  
DATE PREPARED ON MAY 9, 2007

**HNTB**  
HNTB CORPORATION  
11111 WEST 10TH AVENUE, SUITE 400, DENVER, CO 80231-1111

SHEET 3 OF 5  
HNTB PROJECT NO. 060-00-01





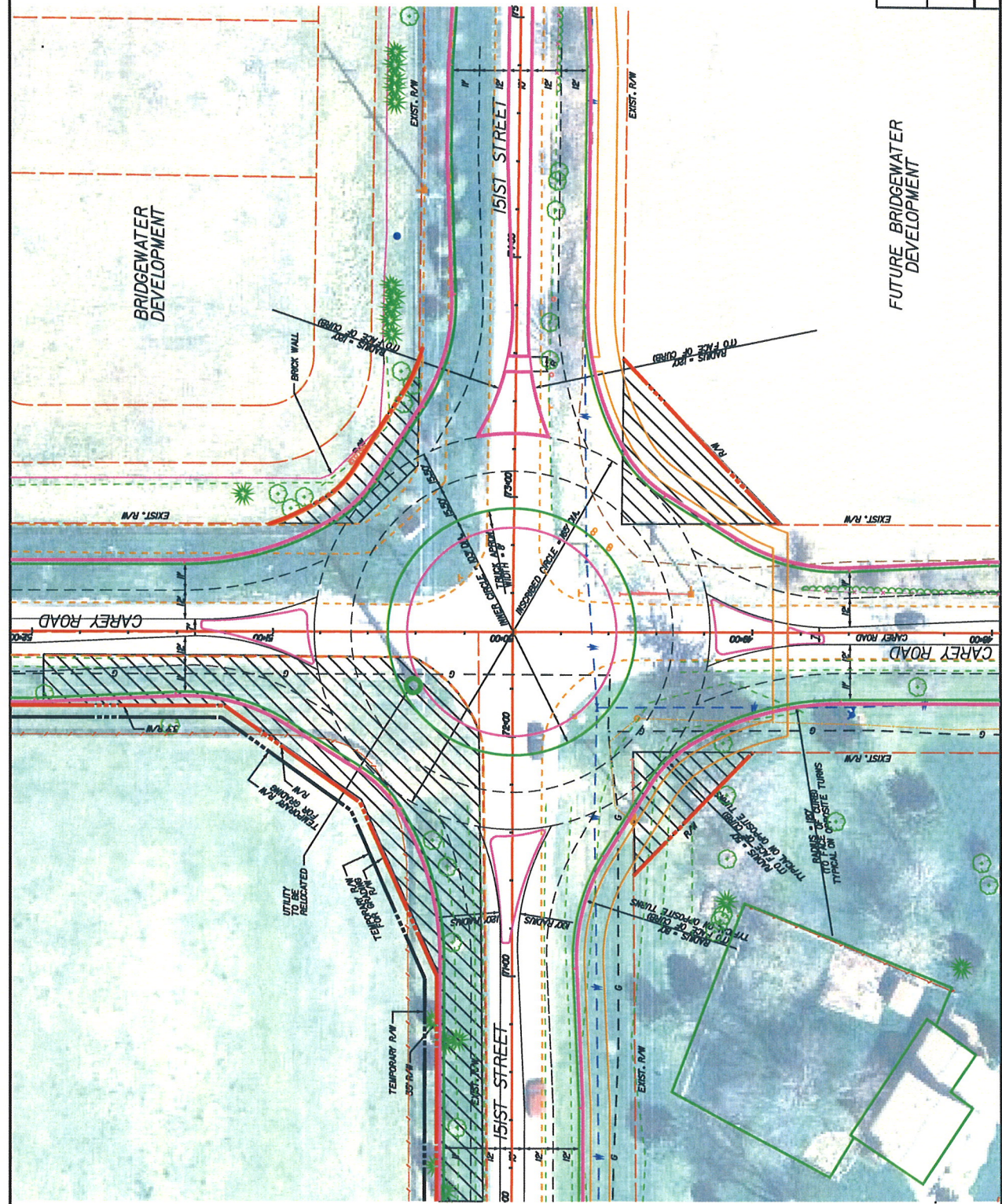
SCALE 1" = 40'

- NOTE:
- 0.47 AC OF PROP. R/W REDD.
  - ROUNDABOUT FOLLOWS CORRIDOR PLAN ON CAREY ROAD

TWO LANE ROUNDABOUT  
PRELIMINARY PLAN  
DATE PREPARED ON MAY 9, 2007

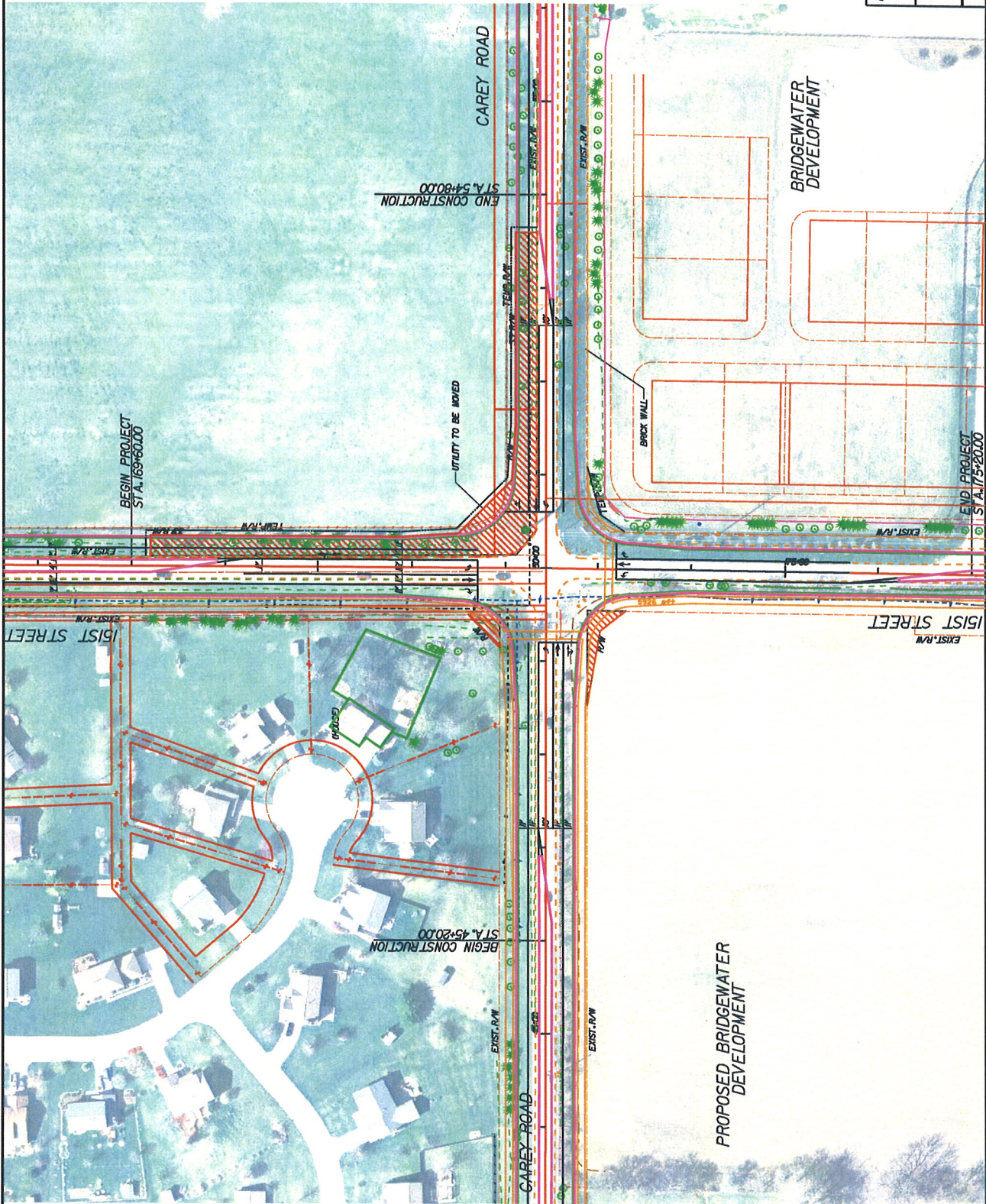
**HNTB**  
HNTB CORPORATION  
11 Monument Circle, Indianapolis, Indiana 46204-4278

SHEET 4 OF 5





SCALE 1" = 100'



- NOTES:
- 0.75 AC OF PROP. R/W REQ'D.
  - THE SUBJECT ALTERNATIVE ASSUMES A FOUR LANE DIVIDED CAREY ROAD AND 151ST.

FOUR LANE SIGNALIZED INTERSECTION  
PRELIMINARY PLAN  
DATE PREPARED ON MAY 9, 2007

**HNTB**  
HNTB CORPORATION  
111 Monument Circle, Indianapolis, Indiana 46204-5178

SHEET 5 OF 5



